

REMARKS

Applicants request reconsideration of the above-identified application in light of the amendments and remarks described herein. Claims 1-5 and 7-18 were pending in this application. Claims 1, 7, 8, and 16 have been amended, and Claim 4 has been canceled. Therefore, Claims 1-3, 5, and 7-18 are now pending in this application.

Claims 1-5 and 7-18 have been rejected. Specifically, these claims have been rejected under 35 U.S.C. § 112 and 103(a). Applicants respectfully submit that the application is now in condition for allowance. Accordingly, applicants request reconsideration and allowance of all claims.

Claim Amendments

In view of the vacated Notice of Allowance, applicants have made amendments to Claims 1, 7, 8, and 16 consistent with the Examiner's Amendment accompanying the Notice of Allowance, to ensure that the amendments are entered.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-5 and 7-15 have been rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement for a non-polymerized material. Accordingly, applicants have amended Claims 1 and 16 to recite a set material.

In addition, Claims 16-18 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have made an appropriate correction to Claim 16.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-5 and 7-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,609,372, issued to Vogel (hereinafter "Vogel"), optionally in view of U.S. Patent No. 3,879,318, issued to Forsyth (hereinafter "Forsyth"). In addition, Claims 7 and 9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Vogel in view of any one of

the following: the English Language Translation of French Patent No. 2,546,331 A1, issued to Bochard (hereinafter "Bochard"), the English Language Translation of Japanese Patent No. 55-119099 (hereinafter "JP '099"), or U.S. Patent No. 6,605,817, issued to Nihei et al. (hereinafter "Nihei"), all of this combination individually and optionally in view of Forsyth. Applicants disagree with the rejections.

Claim 1, as currently amended, recites a set material for neutron shielding and for maintaining sub-criticality. The set material includes a matrix based on a vinylester resin selected from the group consisting of bisphenol A-type epoxy(meth)acrylate resins, novolac-type epoxy(meth)acrylate resins, epoxy(meth)acrylate resins based on halogenated bisphenol A, and resins obtained from an isophthalic polyester and a urethane, at least one polyamide, and an inorganic filler capable of slowing and absorbing neutrons. The inorganic filler comprising at least one hydrogenated inorganic compound and at least one inorganic boron compound. Claim 16, as currently amended, recites a process for preparing the set material.

To establish a case of obviousness, the prior art references must teach or suggest all of the claim limitations; there must be some suggestion or motivation, either in the references or in the knowledge of one skilled in the art, to modify the reference or to combine the reference teachings; and there must be a reasonable expectation of success.

Vogel is cited in the Office Action as purportedly teaching a polymeric material, consisting essentially of a material selected from natural and synthetic rubbers and synthetic plastic materials, and having distributed therethrough and mixed therewith at least one metal-fatty acid compound. The polymeric material is selected from the group consisting of polyurethanes, polyamides, polyethylene, polyfluoroethylene, polypropylene, epoxy resins, unsaturated polymerizable polyesters and synthetic rubbers. *See* Vogel, at Col. 1, lines 63-67. The metal-fatty acid compound includes (a) a saturated fatty acid being solid at room

temperature and having at least nine (9) carbon atoms and (b) at least one metal selected from the group consisting of lead, bismuth, tungsten, zirconium, iron, tin, cadmium, lithium, and barium. *See Vogel*, at Col. 1, lines 48-59.

The Office Action admits that Vogel fails to teach the use of an admixture of unsaturated polymerizable polyester with a polyamide to form the matrix, but then states that it would have been obvious to one having ordinary skill in the art to use the disclosure of Vogel to make an admixture of unsaturated polymerizable polyesters and a polyamide, followed by setting or curing this mixture.

In the alternative, the Office Action applies Forsyth as purportedly teaching the missing elements of Vogel. In that regard, the Office Action cites Forsyth as purportedly teaching admixing an organic amide with an uncured polyester resin as a thickening controller, in combination with conventional alkaline earth oxide or a hydroxide thickening agent. Forsyth is generally directed to fiberglass reinforced composites and does not relate to materials for neutron shielding and maintaining sub-criticality. *See Forsyth*, at Col. 1, lines 15-41. Further, Forsyth teaches the use of organic amides, such as formamide, N-methylformamide, acetamide, and the like, not polyamides. *See Forsyth*, at Col. 4, lines 19-30.

Applicants respectfully submit that Vogel and Forsyth, either alone or in combination, fail to teach or suggest each and every claim limitation of amended Claim 1. In that regard, neither Vogel or Forsyth teach or suggest a matrix based on a vinyl ester resin, particularly a vinyl ester resin selected from the group consisting of bisphenol A-type epoxy(meth)acrylate resins, novolac-type epoxy(meth)acrylate resins, epoxy(meth)acrylate resins based on halogenated bisphenol A, and resins obtained from an isophthalic polyester and a urethane, as recited in amended Claim 1. Vogel merely teaches a polymeric material including an

unsaturated polymerizable polyester. Moreover, Forsyth merely describes an uncured polyester resin.

As is well known in the art, vinylester resins are setting resins different from unsaturated polyester resins. Although vinylester resins are similar to polyesters in their molecular structure, they differ in that the location of their reactive sites are positioned only at the ends of the molecular chains, resulting in tougher and more resilient resins than polyester resins. In addition, the vinylester molecule has fewer ester groups compared to the polyester molecule, resulting in less degradation by hydrolysis.

Further, neither Vogel nor Forsyth, either alone or in combination, teach or suggest the combination of a polyamide together with a matrix based on a vinylester resin selected from the group consisting of bisphenol A-type epoxy(meth)acrylate resins, novolac-type epoxy(meth)acrylate resins, epoxy(meth)acrylate resins based on halogenated bisphenol A, and resins obtained from an isophthalic polyester and a urethane. While the polymeric material in Vogel is selected from the group consisting of polyurethanes, *polyamides*, polyethylene, polyfluoroethylene, polypropylene, epoxy resins, unsaturated polymerizable polyesters and synthetic rubbers, Vogel does not teach a combination of a vinylester resin and a polyamide. Moreover, Forsyth also fails to teach the combination of a vinylester resin and a polyamide. In that regard, Forsyth merely teaches admixing an organic amide (i.e., not a *polyamide*) with an uncured polyester resin as a thickening controller, in combination with conventional alkaline earth oxide or a hydroxide thickening agent.

For at least these reasons, applicants respectfully submit that pending Claims 1-3, 5, and 7-18 are not obvious in view of the cited references, Vogel and Forsyth.

Regarding the rejection of Claims 7 and 9 over Vogel in view of Bochard, JP '099 or Nihei, the combination individually and optionally in view of Forsyth, applicants respectfully

submit that Claims 7 and 9 depend from Claim 1. Bochard, JP '099, and Nihei all fail to cure the deficiencies of Vogel and Forsythe. Therefore, for at least the reasons described above with respect to Claims 1-3, 5, and 7-18, applicants respectfully submit that pending Claims 7 and 9 are also not obvious in view of the cited references.

Accordingly, applicants respectfully request withdrawal of the rejections to pending Claims 1-3, 5, and 7-15.

CONCLUSION

In view of the foregoing amendments and remarks, applicants respectfully submit that the present application is in condition for allowance. The Examiner is invited to contact the applicants' representative at the number set forth below to discuss any issues that may facilitate the prosecution of this application.

Respectfully submitted,

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